

**REMARKS**

Initially, it is noted that claims 1-18 are pending in the application, of which claims 9-18 are allowed, claims 1 and 5 are objected to and claims 2-4 and 6-8 are objected to as depending from rejected base claims. The rejection of claims 1 and 5 is under §102(e) as being anticipated by Nakao et al '832. The rejection and objection respectfully are traversed on several bases:

**(1) The Applicant Generates an Envelope.** Herein, it should be noted that the original claim 1 has the scope of bottom envelope and the original claim 5 has the scope of peak envelop. The power of a laser writing onto an optical disk can be adjusted by feedback loops based on a signal from a photodiode, using sample-and-hold circuits.

The Applicant explains at page 5, line 22, that “because the general sample-and-hold circuit is not fast enough, the sampling time becomes too long so that the signal levels ... cannot be correctly sampled.” Fig. 3 shows a low-frequency, and Fig. 4 a high-frequency, signal from the photodiode and sample-and-hold circuit outputs.

Fig. 5 shows the Applicant’s peak envelope acquiring circuit 510 and bottom envelope acquiring circuit 512, and Fig. 6 shows the outputted dashed envelope lines 602 and 604 that track the extreme levels of the power sampling signal PI from the diode D2 in Fig. 5.

"The frequencies of the peak envelope signal PE and the bottom envelope signal BE are much lower than the frequency of the power sampling signal PI," explains the Applicant (page 13, lines 13-15). The Applicant explains that "due to low frequencies of ... PE and ... BE, a general low-speed sample-and-hold circuit can be normally operated to compensate" (page 13, line 22). Because of the envelope, an expensive high-speed circuit is not needed (page 14, line 3).

**Nakao.** Nakao is concerned with test writing to adjust laser power, and its object is a "minimal number of test writing" (col. 3, line 9). Nakao discloses "controlling power of the irradiated light" (col. 3, line 2) by "calculating an optimum average power in accordance with the bottom power and the peak power of the optimum condition" (col. 3, lines 15-17, emphasis added). The calculating is performed with equation 2 in Nakao.<sup>1</sup>

Nakao also calculates the instantaneous power, from the average power. Nakao divides the disk into zones and uses a predetermined factor K to get a "corrected" recording power for that zone (col. 7, lines 13-33) and does the test at an inner zone where the peripheral speed is

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<sup>1</sup> Equation 2, in col. 6, is  $P_{ave} = (DxP_w + (100-D)xP_b)/100$ , where P<sub>ave</sub> is average power, D is light emission duty cycle, P<sub>w</sub> is peak power, and P<sub>b</sub> is bottom power.

the slowest (col. 7, lines 34-40). All of the power settings are calculated from the test writing and check at the inner zone.

Nakao does not disclose adjusting the power in real time according to the peaks.

*Nakao nowhere discloses generating a bottom envelope (claim 1) or generating a peak envelope (claim 5)*, and, with respect, the Examiner has not pointed out any such teaching nor even asserted any such teaching.

**(2) Sampling the Envelope.** The Applicant claims “sampling the bottom envelope signal” in line 5 of claim 1 and “sampling the peak envelope signal” in line 5 of claim 5. Nakao does not disclose this, and indeed *could* not because it discloses no envelope signals to be sampled. As mentioned above, Nakao relies on test writing and read checking, not sampling.

**(3) Control According to the Sampled Envelope.** The Applicant claims “controlling a bias power of the optical disk” by “the **sampled** bottom envelope signal” from the generated “bottom envelope signal” (claim 1), and “controlling a write power of the optical disk” by “the **sampled** peak envelope signal” from the generated “peak envelope signal” (claim 5).

Nakao does not disclose the method of "controlling the laser source based on the sampled signal" according to instant claim 1 and claim 5, and indeed could not because no such sampled signal is disclosed.

In view of the above, claims 1 and 5 and claims 2-4 and 6-8 respectively depending therefrom, are deemed clearly to be allowable, and the rejection of and objection to these claims accordingly should be withdrawn.

Based on the above, it is submitted that this application is in condition for allowance and such a Notice, with allowed claims 1-18, earnestly is solicited.

If the Examiner believes that a conference would be of value in expediting the prosecution of this application, the Examiner is hereby invited to telephone the undersigned counsel to arrange for such a conference. Should any fee be required, please charge the same to our Deposit Account No. 18-0002 and advise us accordingly.

Respectfully submitted,



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Date

SMR:nsb